

Chapter VI

Health Personnel

VI. Health Personnel

High quality health care services depend on the availability of competent health personnel in sufficient numbers to meet the population's needs. Mississippi is traditionally a medically underserved state, particularly in sparsely populated rural areas and areas containing large numbers of poor people, elderly people, and minorities. This chapter discusses the areas of greatest need for health care personnel, focusing on physicians, dentists, and nurses, and recommends actions to help increase the numbers of health personnel in underserved areas.

Physicians

The University of Mississippi Medical Center's School of Medicine has graduated 4,465 physicians, including 297 non-white physicians, since its first class in 1957. The school awarded 103 Doctor of Medicine degrees in school year 2002-2003. The class included 17 minorities, or 16.5 percent of the graduates.

Mississippi had 5,457 active medical doctors, 246 osteopaths, and 62 podiatrists licensed by the Board of Medical Licensure for FY 2004, for a total of 5,765 active licensed physicians practicing in the state. This number represents an increase of 82 physicians, or more than 1.4 percent, from FY 2003. Based on Mississippi's projected 2005 population of 2,991,488, the state has approximately one active medical doctor for every 548 persons.

Mississippi has improved its population-to-physician ratio in recent years; however, not all physicians are available to the general population. Many are specialized and treat patients only by referral. Others occupy administrative or teaching positions and treat patients only part-time, if at all. Additionally, 1,082 Mississippi physicians, or 18.8 percent of the total, are aged 60 or older and may not see patients on a full-time basis. All of these factors can limit the availability of physicians.

Approximately 17.0 percent of Mississippi's medical doctors cite the practitioner's office as their primary place of business; 21.0 percent cite clinics; 21.0 percent cite both hospitals and the practitioner's office, with no major setting determined; 17.8 percent cite hospitals; 5.3 percent cite schools of medicine; and the remainder cite federal health facilities, schools, public health, or other areas.

Approximately 2,269 (41.6 percent) of the state's active medical doctors are primary care physicians, representing a ratio of one primary care physician for every 1,318 persons. The primary care physicians included 717 family practitioners, 123 general practitioners, 749 internal medicine physicians, 314 obstetrical and gynecological physicians, and 366 pediatricians. Table VI-1 presents the total number of medical doctors in all specialties.

Primary care medical doctors are distributed by race and sex as follows: 1,755 whites, 514 non-whites; 1,744 males, and 525 females. An analysis of age distribution indicates 421 primary care physicians 60 years of age or older, or 18.6 percent of the total. Table VI-2 presents the number of physicians by sex, race, and age per primary care specialty; Map VI-1 depicts the total number of primary care medical doctors by county.

Mississippi had 67 counties or portions of counties designated as health professional shortage areas for primary medical care for 2004. The United States Department of Health and Human Services defines a health professional shortage area (HPSA) as a geographic area encompassing 30 minutes travel time and containing at least 3,500 persons per primary care physician. Areas with 3,000 persons per primary care physician are also designated if the areas meet any one of the following three criteria: 1) more than 100 births per year per 1,000 women aged 15-44; 2) an infant mortality rate of more than

20 infant deaths per 1,000 live births; or 3) more than 20 percent of the population with incomes below the poverty level.

Degree-of-shortage designations reflect the ratio of population to the number of full-time equivalent primary care physicians and the presence or absence of unusually high needs for primary health care services as demonstrated by the three conditions listed in the previous paragraph.

Minority Physicians

Mississippi had 896 minority physicians licensed and practicing in the state in 2004: 390 black, 382 Asian, nine Indian, and 116 of other races. Blacks comprised 6.77 percent of the total physicians and Asians 6.6 percent. Using a non-white population figure of 1,157,960 (38.7 percent of the total 2005 projected population), the state has one minority physician for every 1,291 non-white persons. Considering black physicians only, there is one black physician for every 2,969 non-white persons; 298 (or 76.4 percent) of the state's black physicians were primary care physicians.

The UMC School of Medicine has graduated a total of 297 non-white physicians, with 17 minorities included in the 2002-2003 graduating class. Mississippi needs additional minority physicians to meet the high need for medical services in rural Mississippi. This need is heightened by socioeconomic factors such as education, income, and housing conditions. All of these factors affect health status.

Osteopaths

Mississippi had 246 active osteopaths licensed for FY 2004, distributed as follows: 106 in family practice; 33 in emergency medicine; 10 in general practice; 10 in anesthesiology, 23 in internal medicine, 10 in pediatrics, 13 in obstetrics and gynecology, and 41 in various other specialties. Distribution by age was: four under age 30; 80 aged 30-39; 95 aged 40-49; 56 aged 50-59; and 11 aged 60 and older. Racial make-up was 227 white, 15 black, two Asian, one American Indian, and one of other race. Distribution by sex was 206 males and 40 females.

Table VI-1
Medical Doctors by Specialty
FY 2003

Adolescent Medicine	2	Nephrology	50	Psychiatry, Child and Adolescent	25
Aerospace Medicine	3	Neurology	84	Psychiatry, Geriatric	1
Allergy and Immunology	21	Neurology and Psychiatry	8	Public Health and General Preventive Medicine	16
Anesthesiology	250	Neurology, Child	1	Pulmonary Disease	13
		Neuropathology	2	Pulmonary Medicine	32
Blood Banking/ Transfusion Medicine	2	Neuroradiology	3		
		Nuclear Medicine	7		
Cardiac Electrophysiology	10	Obstetrics & Gynecology	310	Radiation Oncology	35
Cardiology	66	Occupational Medicine	8	Radiation Therapy	4
Cardiovascular Disease	90	Oncology	15	Radiology	96
Clinical Genetics (M.D.)	1	Ophthalmology	178	Radiology, Diagnostic	205
Clinical Molecular Genetics	1	Other	24	Radiology, Vascular and Interventional	14
Critical Care Medicine	4	Otolaryngology	48	Rehabilitation Medicine	1
		Otolaryngology Neurotology	1	Rheumatology	21
Dermatology	55	Otorhinolaryngology	51	Roentgenology	2
Dermatopathology	2			Roentgenology, Diagnostic	8
		Pain Management	14		
Emergency Medicine	272	Pathology, Anatomic	15	Sports Medicine	1
Endocrinology	1	Pathology, Anatomic and Lab Medicine	7	Surgery	24
Endocrinology, Diabetes and Metabolism	17	Pathology, Anatomic/Clinical	128	Surgery, Colon/Rectal	1
Endocrinology, Reproductive	2	Pathology, Clinical	2	Surgery, General	215
		Pathology, Forensic	1	Surgery, General/Vascular	23
Family Practice	717	Pediatric Cardiology	7	Surgery, Hand	2
		Pediatric Critical Care Medicine	2	Surgery, Neurological	69
Gastroenterology	70	Pediatric Emergency Medicine	1	Surgery, Obstetrics/Gynecologic	5
General Practice	123	Pediatric Endocrinology	2	Surgery, Orthopaedic	246
Geriatric Medicine	5	Pediatric Gastroenterology	1	Surgery, Otorhinder & Fac. Pal.	10
Gynecologic Oncology	4	Pediatric Hematology-oncology	2	Surgery, Pediatric	3
		Pediatric Neurology	2	Surgery, Plastic	7
Hematology	2	Pediatric Otolaryngology	1	Surgery, Plastic and Reconstructive	48
Hematology and Oncology	18	Pediatric Radiology	2	Surgery, Thoracic	9
		Pediatrics	346	Surgery, Thoracic Cardiovascular	40
Infectious Diseases	23	Physical Medicine and Rehab.	24	Surgery, Urological	35
Internal Medicine	749	Preventive Medicine/Aerospace Medicine	1	Undersea Medicine	1
		Preventive Medicine/ Occupational-Environmental Medicine	2	Urology	80
Laboratory Medicine	1	Preventive Medicine/Occupational Medicine	1		
Medical Genetics	3	Psychiatry	237	Other and Unknown	8
Medical Oncology	29	Psychiatry, Addiction	4		
		Psychiatry, Child	1		
Neonatal and Perinatal Medicine	12			Total	5,457
Neonatology	9				

Source: State Board of Medical Licensure

Table VI-2
**Medical Doctors in Mississippi — Federal and Nonfederal
Specialty by Sex, Race, and Age**
FY 2003

	Family Practice	General Practice	Internal Medicine	OB/GYN*	Pediatrics**	Other	Unknown	Total
Total	717	123	749	314	366	3,180	8	5,457
Sex								
Male	584	113	592	250	205	2,758	7	4,509
Female	133	10	157	64	161	422	1	948
Race								
White	605	105	503	268	274	2,798	7	4,560
Black	77	14	102	38	36	123	0	390
Indian	2	1	1	0	0	5	0	9
Asian	31	3	106	6	48	187	1	382
Other	2	0	37	2	8	67	0	116
Age								
Under 30	8	0	15	6	9	42	0	80
30 - 34	72	2	109	38	47	280	1	549
35 - 39	98	4	164	45	75	410	1	797
40 - 44	93	4	134	38	56	512	0	837
45 - 49	124	13	126	51	51	524	1	890
50 - 54	100	18	86	38	37	427	0	706
55 - 59	64	15	38	35	35	346	1	534
60 - 64	37	11	20	26	26	263	0	383
65 - 69	47	15	26	17	17	198	0	320
≥ 70	74	41	31	20	13	178	4	361

* OB/GYN includes Gynecologic Oncology, Obstetrics, and Gynecology.

** Pediatrics includes Pediatrics, Pediatric Allergy, Pediatric Cardiology, Pediatric Critical Care Medicine, Pediatric Emergency Medicine, Pediatric Endocrinology, Pediatric Hematology - Oncology, Pediatric Nephrology, Pediatric Infectious Disease, Pediatric Gastroenterology, Pediatric Intensive Care, Pediatric Neurology, Pediatric Otolaryngology, Pediatric Pathology, Pediatric Psychiatry, Pediatric Pulmonology, Pediatric Radiology, Pediatric Rheumatology, and Pediatric Sports Medicine.

Source: Mississippi State Board of Medical Licensure

Includes: Family Practice, General Practice, Internal Medicine, Obstetrics and Gynecology and Pediatrics

Source: Mississippi State Board of Medical Licensure

Dentists

Numerically, dentistry represents the fourth largest health profession, following nursing, medicine, and pharmacy. The Mississippi State Board of Dental Examiners reported 1,403 licensed (1,188 "active" and 215 "inactive") dentists in the state for 2004, with 40 new dentists licensed during 2003. Based on Mississippi's 2005 projected population of 2,991,488, the state has one active dentist for every 2,518 persons.

The more populated areas of Mississippi are sufficiently supplied with dentists; however, many rural areas still face tremendous shortages, particularly in dentists who specialize in treating periodontal disease. The U.S. Department of Health and Human Services has designated 38 Mississippi counties or portions of counties as health professional shortage areas for dental care.

Mississippi's two major population centers contain the most active dentists. The Jackson area had a total of 310 active dentists in 2004, with 178 in Hinds County, 73 in Rankin County, and 59 in Madison County. The Gulf Coast region had the second largest count at 153, with 93 in Harrison County, 50 in Jackson County, and ten in Hancock County. Combined, these two metropolitan areas contained 39 percent of the state's total supply of active dentists.

On the opposite end of the spectrum, six counties – Carroll, Franklin, Greene, Kemper, Quitman, and Webster – had only one active dentist each and six counties – Amite, Benton, Humphreys, Issaquena, Jefferson, and Sharkey – had no active dentist. Map VI-2 presents the number of dentists per county and indicates the number of out-of-state, active, licensed dentists who have primary offices in the state.

The increase in the number of dentists in the state has stabilized since 1988. Both the Mississippi Dental Association and the University of Mississippi School of Dentistry closely monitor the supply and demand for dentists.

The University of Mississippi School of Dentistry has awarded 732 Doctor of Dental Medicine degrees since graduating its first class in 1979, with 28 graduates in the school year 2002-2003. The School of Dentistry maintains 120 students overall, more or less equally divided among its four-year educational program.

The School of Dentistry accepts six residents each year in a general practice residency and six residents in an advanced education in general dentistry residency, for a total of 12 residents. Both residencies are one-year post-doctoral programs. The residency program began in July 1993 with only three residents.

Nonwhite Dentists

A total of 65 non-white dentists have graduated from the UMC School of Dentistry, or 8.9 percent of its total graduates. The class of 2002-2003 included two non-white members.

Dental Hygiene Personnel

Dental hygienists are the primary allied dental personnel in Mississippi. The Mississippi State Board of Dental Examiners reported 1,085 licensed dental hygienists (875 active and 210 inactive) in Mississippi in 2004, with 75 new licenses issued during 2003.

Map of Mississippi showing dental service distribution by county. The map uses shading to indicate areas with no dentist (solid grey), population concentration (diagonal lines), and 33 out-of-state dentists with primary offices in the state (black). Numbers in each county represent the number of dentists.

Legend:

- No Dentist (Solid Grey)
- Population Concentration (Diagonal Lines)
- 33 Out-of-state Dentists have primary offices in the state (Black)

County Data (Number of Dentists):

County	Dentists	Category
Adams	11	None
Alcorn	15	None
Amite	0	No Dentist
Benton	0	No Dentist
Bolivar	1	None
Calhoun	2	None
Carroll	1	None
Chickasaw	6	None
Choctaw	4	None
Claiborne	2	None
Clarke	3	None
Clay	4	None
Coahoma	9	None
DeSoto	42	Population Concentration
Franklin	1	None
Forrest	62	Population Concentration
George	6	None
Grenada	9	None
Hancock	10	Population Concentration
Harrison	93	Population Concentration
Hinds	178	Population Concentration
Holmes	3	None
Issaquena	0	No Dentist
Itawamba	4	None
Jackson	50	Population Concentration
Jasper	2	None
Jefferson	0	No Dentist
Jefferson Davis	3	None
Jones	25	None
Kemper	1	None
Land	4	Population Concentration
Leflore	15	None
Lamar	4	Population Concentration
Lauderdale	40	None
Lawrence	4	None
Leake	3	None
Lee	7	None
Lincoln	9	None
LeFlore	15	None
Louisiana	1	None
Lowndes	2	None
Madison	7	None
Marion	4	None
Marshall	3	None
Monroe	8	None
Montgomery	3	None
Morgan	1	None
Neshoba	6	None
Newton	6	None
Noxubee	2	None
Oktibbeha	15	None
Ole Miss	1	None
Olin	1	None
Oxford	1	None
Panola	7	None
Perry	2	None
Pike	18	None
Pontotoc	5	None
Prairie	1	None
Prentiss	7	None
Quitman	3	None
Rankin	73	Population Concentration
Scott	8	None
Sharkey	0	No Dentist
Shenandoah	1	None
Smith	3	None
Stamps	1	None
Stone	3	None
Stovall	1	None
Sunflower	8	None
Suwannee	1	None
Tallahatchie	3	None
Tate	6	None
Tippah	5	None
Tishomingo	6	None
Tunica	1	None
Townsend	1	None
Union	7	None
Washington	18	None
Webster	1	None
Wilkinson	3	None
Winston	4	None
Yalobusha	2	None
Yazoo	7	None
Yipchee	1	None

Source: Mississippi State Board of Dental Examiners

Mississippi has five schools of dental hygiene: the School of Health Related Professions at UMC in Jackson, Mississippi Delta Community College in Moorhead, Meridian Community College in Meridian, Northeast Mississippi Community College in Booneville, and the Forrest County Center of Pearl River Community College in Hattiesburg. The schools reported a total enrollment of 71 first-year students and 71 second-year students in 2003-2004. Seventy-six students graduated in 2003.

Nurses

Members of the nursing profession represent the largest single contingent of professional health care providers in the state. In fact, nurses in Mississippi outnumber all other health professionals combined.

Registered Nurses

The State Board of Nursing reported 31,659 registered nurses in Mississippi for FY 2004 including 1,497 with an inactive status. Of this number, 23,216 (73.3 percent) were employed full-time in nursing careers; 3,917 (12.4 percent) were employed part-time in nursing careers; 566 (1.8 percent) were employed in non-nursing careers; and 3,960 (12.5 percent) were unemployed.

Of the 27,133 RNs employed full-time or part-time in nursing, 17,404 (64.2 percent) were employed in hospitals; 1,407 (5.2 percent) in nursing homes; 584 (2.2 percent) in schools; and 3,072 (11.3 percent) in other nursing careers. RNs by gender are 91 percent female and nine percent male.

Nurse Practitioner

Nurse Practitioner includes any person licensed to practice nursing in Mississippi and certified by the Board of Nursing to practice in an expanded role as a nurse practitioner. For FY 2004, there were 1,415 RNs certified for expanded role nursing as nurse practitioners in the following specialties: Acute Care Nurse Practitioner - 25; Adult Nurse Practitioner - 38; Adult Psychiatric/Mental Health Nurse Practitioner - 14; Certified Nurse Midwife - 25; Certified Registered Nurse Anesthetist - 445; Family Nurse Practitioner - 754; Family Planning Nurse Practitioner - 6; Family Psychiatric/Mental Health Nurse Practitioner - 7; Gerontological Nurse Practitioner - 5; Neonatal Nurse Practitioner - 29; Obstetrics/Gynecology Nurse Practitioner - 15; Pediatric Nurse Practitioner - 26; and Women's Health Care Nurse Practitioner - 26. Nurse practitioners by highest degree are as follows: 65 diploma; 65 associate; 59 baccalaureate non-nursing; 168 baccalaureate nursing; 84 masters non-nursing; 941 masters nursing; and 33 doctorate.

Licensed Practical Nurses

The Board of Nursing reported 12,937 licensed practical nurses (LPNs) in Mississippi for FY 2004, including 714 with an inactive status. Of this number, 8,650 (66.9 percent) were employed full-time in nursing careers; 1,453 (11.2 percent) were employed part-time in nursing careers; 318 (2.5 percent) were employed in non-nursing careers; and 2,516 (19.4 percent) were unemployed.

Of the 10,103 LPNs employed full-time or part-time in nursing, 3,420 (33.9 percent) were employed in hospitals; 3,149 (31.2 percent) in nursing homes; 515 (5.1 percent) community, public, or home health; 1,739 (17.2 percent) in offices; 374 (3.7 percent) in private duty; and 906 (9.0 percent) in other nursing careers. There are 2,276 LPNs certified for an expanded role in intravenous therapy, 137 LPNs certified for an expanded role in hemodialysis, and 31 LPNs certified in both expanded roles.

LPNs by gender are 96 percent female and four percent male. LPNs by race are 64 percent Caucasian, 35 percent African American, and one percent other.

Nursing Assistants/Aides

The Department of Health's Bureau of Health Facility Licensure and Certification regulates the Nurse Aide Training and Competency Evaluation Programs (NATCEPs). The Program certifies nurse aides to work in long-term care nursing facilities or distinct part/skilled nursing facilities in acute care hospitals that participate in the Medicare/Medicaid programs, as mandated by the Omnibus Budget Reconciliation Act (OBRA) of 1987. The Bureau develops requirements for approval of nurse aide training programs, conducts onsite inspections of nurse aide training programs, post adverse findings against errant nurse aides in the Mississippi Nurse Aide Registry, and oversees the maintenance and content of the Registry.

As of December 31, 2003, Mississippi had 15,712 active Certified Nurse Aides on the Registry. A total of 2,540 nurses aides were certified during 2003. These numbers do not reflect the nurse aides that work in sites other than skilled nursing facilities and distinct part skilled nursing sections of certain rural hospitals. To be classified as a certified nurse aide, an individual must successfully complete a state approved nurse aide training program and pass a competency evaluation that includes written, oral, and clinical skill examinations.

Nursing Education

In Fall 2003, the Mississippi Institutions of Higher Learning's nursing education programs enrolled 4,288 students, a 13.0 percent increase from the 2002 enrollment of 3,801. Mississippi has 23 undergraduate and five graduate nursing education programs, preparing a variety of professional nurse specialists for teaching fields, administration, or clinical practice. The University Medical Center and the University of Southern Mississippi collaboratively offer a Ph.D. degree in Nursing.

Undergraduate nursing education includes 15 associate degree programs, which are located in 13 community or junior colleges and two public universities. These programs enrolled a total of 2,746 students in Fall 2003 (64 percent of the 4,289 students involved in nursing school). Undergraduate education also includes seven baccalaureate degree programs in five public universities and two private colleges. A total of 1,192 students participated in these programs for Fall 2003 (28 percent of all nursing students).

Mississippi offers five master's degree nursing programs, all at public universities. These programs reported a total enrollment of 350 students in Fall 2003 (eight percent of all nursing students).

During FY 2003, 1,141 candidates received registered nursing licenses, with 1,123 of these taking the licensure examination for the first time and 18 repeating the exam. The pass rate was 88 percent, as compared to 86 percent in FY 2002.

Mississippi's registered nurses in FY 2004 included 2,551 with diplomas; 16,110 with associate degrees; 1,078 with baccalaureate non-nursing degrees; 8,809 with baccalaureate nursing degrees; 659 with master's non-nursing degrees; 2,220 with master's nursing degrees; and 232 with doctorate degrees.

Other Health Related Professionals

This section summarizes the status of health professional manpower in Mississippi in other specific categories.

Podiatrists

Foot care services are provided primarily by podiatrists, orthopedic surgeons, and general and family practice physicians. Podiatrists devote most of their practice to the treatment of soft tissue complaints and flat foot.

Mississippi licensed 62 active, instate podiatrists for 2004. This number includes 44 general practitioners, 14 foot surgeons, two foot orthopedists, and two other or unknown. Age distribution included none under age 30, 26 aged 30-39, 18 aged 40-49, 11 aged 50-59, and seven aged 60 or over. Racial make-up was 39 white, 19 black, two Asian, and two of other race. Sex distribution was 51 males and 11 females.

Because most rural areas do not have a podiatrist, primary care physicians provide the majority of foot care. Under the formula for designation of podiatric care shortage areas, primary care physicians are estimated to spend two percent and orthopedic surgeons 15 percent of their time treating patients needing general foot care.

Chiropractors

The practice of chiropractic involves the analysis of any interference with normal nerve transmission and expression and the procedure preparatory and complementary to the correction thereof, by adjustment and/or manipulation of the articulations of the vertebral column and its immediate articulations for the restoration and maintenance of health without the use of drugs or surgery. Chiropractors are licensed to use x-rays and therapeutic modalities.

The Mississippi State Board of Chiropractic Examiners reported 258 practicing chiropractors in the state during 2004. Chiropractors were located in 55 of Mississippi's 82 counties; 27 counties, or 33 percent, do not have a resident chiropractor. The highest number of chiropractors were located in the following counties: 31 in Harrison; 20 in Jackson; 21 in Hinds; 17 in DeSoto; and 15 in Lee.

Psychiatrists and Psychologists

As reported in Table VI-1, 237 licensed physicians practiced psychiatry in Mississippi during FY 2004. The Jackson metropolitan area contained 49.8 percent of the psychiatrists, with 77 in Hinds County, 27 in Rankin, and 14 in Madison. Harrison County had 29 psychiatrists; Lauderdale County had 14; and Forrest County had 15.

The Mississippi Board of Psychology reported 287 licensed psychologists in the state for 2004. Only individuals with doctorate degrees are eligible for licensure in Mississippi. As with psychiatrists, the majority of psychologists practice in the Jackson area or on the Coast. Smaller concentrations practice in DeSoto, Forrest, and Lafayette counties, with the remainder scattered throughout the state. The actual number of licensed psychologists providing clinical services to the public is reduced when those filling administrative or teaching positions are subtracted from the total. A substantial portion of the state receives insufficient psychological services, particularly the rural areas.

Licensed Professional Counselors

The Mississippi State Board of Examiners for Licensed Professional Counselors, established in 1985, regulates the activities of individuals rendering services to the public under the title of "Licensed Professional Counselor" (LPC). Mississippi LPCs are highly trained to do assessments, diagnosis, and treatment of mental disorders. They provide an array of services including psychotherapy; marriage and family therapy; vocational, educational, and rehabilitation counseling; and consultation. The numerical count in May 2004 indicated that 158 LPCs practice in the private and public sector; 94 in university and 104 in school settings; 146 in the community mental health sector; 62 in state facilities; 70 in hospitals; and 156 in other settings, such as rehabilitation programs, churches, probation programs, correctional facilities, and industries.

The Board of Examiners for Licensed Professional Counselors reported 718 counselors in Mississippi in May 2004, and an additional 84 out-of-state residents with a Mississippi license. Currently, licensed professional counselors reside in approximately 85 percent of Mississippi counties.

Optometrists

The Mississippi State Board of Optometry reported 287 optometrists licensed in Mississippi for 2004, with 250 of those certified to use diagnostic and therapeutic agents. Under new regulations requiring standardization of licensure, all optometrists will be certified to use diagnostic and therapeutic agents by December 2006. The Board conducts two licensure examinations each year, on the second Saturday of January and of July. Although every county does not have a resident optometrist, many optometrists operate branch offices in adjoining counties.

Pharmacists

The State Board of Pharmacy reported approximately 2,471 licensed pharmacists in the state during 2003, with an additional 801 pharmacists licensed in Mississippi but living in other states. The Board issued a total of 126 pharmacist licenses during 2003 – 74 issued by examination and 52 by reciprocity. The University of Mississippi in Oxford contains the state's School of Pharmacy. Students complete a six-year program, including two years of pre-professional work and four years of a professional curriculum. The school graduated 59 students in May 2003 with the degree Doctor of Pharmacy.

Veterinarians

The Mississippi Board of Veterinary Medicine listed 985 licensed veterinarians in Mississippi in January 2004, with approximately 629 in active practice. The Board reports that no licensed veterinarians reside in Benton, Choctaw, Greene, Issaquena, Quitman, or Tunica counties, but these counties have adequate access to veterinary services from veterinarians residing in adjacent counties in Mississippi and neighboring states. Mississippi State University, College of Veterinary Medicine, has graduated 885 veterinarians since its first class in 1981. The College will accept 72 new candidates as of June 2004.

Physician Assistants

Physician Assistants (PA) are trained to provide routine diagnostic, therapeutic, and preventive health care services under the direction and supervision of a physician. The physician assistant licensing law allows the state Board of Medical Licensure to regulate the practice of PAs, including scope of practice, level of supervision, discipline, and other issues relevant to PA practice. The Mississippi State Board of Medical Licensure licensed 46 physician assistants for the year 2004. Approximately 37 physicians assistants practicing in Mississippi are federal employees.

Allied Health Personnel

Allied health professionals render service in every aspect of health care delivery – emergency services, patient evaluation, treatment, therapy, testing, fabrication and fitting of medical devices, record maintenance, acute care, long-term care, and rehabilitation. This group of occupations exhibits wide variations in degree of responsibility, training, professional organization, regulation, employment settings, and characteristics of workers. Allied health personnel include technologists, therapists, and others who perform relatively high-level health care functions; technicians and assistants whose duties vary in complexity; and aides who perform routine supportive services. The scope of allied health education is similarly broad, ranging from limited post-secondary training to post-doctoral study.

For many occupations, responsibilities vary widely among employment settings and institutions. Other occupations are relatively new, and functions are still evolving. All of this diversity contributes to difficulty in developing reliable estimates of supply and demand for allied health personnel. This section discusses allied health occupations, training programs, and distribution throughout the state to the extent that information is available.

Physical Therapy Practitioners

Physical therapy (PT) practitioners provide preventive, diagnostic, and rehabilitative services to restore function or prevent disability from disease, trauma, injury, loss of a limb, or lack of use of a body part to individuals of all ages. Physical therapy practitioners also provide health care information to enhance function and to prevent disability and pain. Physical therapy is used to treat neurological disorders, nerve or muscular injuries, chest conditions, amputations, fractures, burns, arthritis, and many other conditions.

In addition to treating and assessing the progress of patients, PT personnel work closely with other members of the health care team and instruct caregivers in treatment to be continued in the home. PT practitioners provide services in hospitals, outpatient clinics, home health agencies, schools, and a variety of other settings. Practice patterns vary with employment settings.

Two categories of practitioners exist: physical therapist and physical therapist assistants. A small number of Mississippi physical therapists have attained board-certified status in specific practice areas through advanced study/practice and successful completion of national certification examinations. Presently, access to physical therapy services is limited by an insurance requirement and licensure law that states patients must be referred by another health care practitioner for continued treatment.

The MSDH Division of Professional Licensure reported 1,271 licensed physical therapists in Mississippi as of March 2004, including 1,073 Mississippi therapists and 198 out-of-state residents. Nine percent of the Mississippi resident physical therapy practitioners live in Hinds County, six percent in Harrison County, and eight percent in Madison County, for a total of 23 percent in three counties. Mississippi ranks 39th in the United States for the ratio of therapists per 100,000 population.

The MSDH also reported 504 physical therapist assistants licensed by the Mississippi Board of Physical Therapy; 435 (86.4 percent) of these PTAs reside in the state.

UMC provides Mississippi's only entry level educational program for physical therapists, a two-year Master of Physical Therapy program. The physical therapy program has graduated 1,030 therapists since initiation of the program in 1973, and 28 will receive degrees in May 2004.

Hinds Community College, Itawamba Community College, Meridian Community College, and Pearl River Community College offer educational programs leading to associate degrees as a physical therapist assistant. In 2003, Itawamba graduated 13 PTAs, Pearl River seven, Hinds six, and Meridian 11. Presently, there is a need to only maintain existing programs. The U.S. Department of Labor projects a 21-35 percent increase in employment through 2010. Demand for physical therapy practitioners should continue as the number of individuals with disabilities or limited functions increases due to an aging population and medical development.

Speech Pathologists and Audiologists

The disciplines of speech-language pathology and audiology focus on disorders in the production, reception, and perception of speech and language. Although both provide specialized assistance to persons with communication problems, speech-language pathologists are primarily concerned with speech, language, and voice disorders, while audiologists concentrate on hearing problems.

The MSDH reported 877 speech-language pathologists and 138 audiologists licensed in Mississippi for FY 2004, with 788 of the speech-language pathologists and 115 of the audiologists residing in the state.

Occupational Therapists

Occupational therapy is a health and rehabilitation profession that serves people of all ages who are physically, psychologically, or developmentally disabled. These health professionals work closely with other members of the rehabilitation health care team. Their functions range from diagnosis to treatment, including the design and construction of various special and self-help devices. OTs direct their patients in activities designed to help them learn skills necessary to perform daily tasks, diminish or correct pathology, and promote and maintain health. There are two levels of personnel: occupational therapists and occupational therapy assistants.

Therapists work in many different settings, including rehabilitative and psychiatric hospitals, school systems, nursing homes, and home health agencies. The nature of their work varies according to the setting. There are a number of recognized specialty areas, which have national examinations and certification.

The MSDH reported 661 licensed occupational therapists and 210 certified occupational therapy assistants on its Mississippi roster for FY 2004, with 536 of the OTs and 167 of the OTAs residing in the state.

The School of Health Related Professions at UMC offers the only school of occupational therapy in the state. It is a masters entry level that consists of a three-year senior college program, following two years of prerequisite course work at either a community college or a four-year senior college. The masters level program was initiated in May 2003. The school has graduated 332 therapists since beginning its first class in May 1989, including 26 expected to graduate in 2004. The program has received more than 55 applications for a maximum of 32 available slots to begin class in the summer of 2004.

Pearl River Community College has developed an OTA program which expects to graduate 13 OTAs in May of 2004. Future classes are expected to contain a maximum of 20 students. Holmes Community College expects to graduate 143 OTA candidates in May 2004.

The U.S. Department of Labor, Bureau of Statistics, *Occupational Outlook Handbook* projects that the occupational therapy profession will increase faster than average, especially as the rapid growth of the number of middle-aged and elder individuals increase the demand for therapeutic services. This growth is projected to continue through 2012. As there is an expansion of the school-age population, there will also be an expansion of services for disabled students, resulting in an employment growth in the school systems.

Emergency Medical Personnel

The training of emergency medical personnel includes ambulance drivers and emergency medical technicians (EMTs). Mississippi requires all ambulance drivers to have EMS driver certification (EMS-D). To qualify, an individual must complete an approved driver training program that involves driving tasks, vehicle dynamics, vehicle preventative maintenance, driver perception, night driving, and information on different driving maneuvers. This training offers both academic and clinical (practical hands on) experiences for the prospective ambulance driver.

EMT training involves EMT-Basic (EMT-B), EMT-Intermediate (EMT-I), and EMT-Paramedic (EMT-P). In accordance with federal Department of Transportation standards, EMT-B training

includes basic life support, airway, breathing, Automated External Defibrillators (AED), circulation procedures, and assistance to patients with a limited number of drugs.

The EMT-I and EMT-P receive training in basic and advanced life support, also in accordance with federal Department of Transportation standards. Advanced life support involves basic life support plus definitive therapy. The emergency physician, the EMT-I, and the EMT-P constitute the advanced life support team. This team assesses and aggressively treats life-threatening conditions using advanced airway maneuvers, invasive procedures, cardiac monitors, drugs, defibrillation, intravenous fluids, and other adjuncts.

The EMT-I performs the same basic responsibilities as an EMT-B. In addition, the EMT-I uses adjunctive equipment to sustain life, such as intravenous therapy, airway management, and defibrillation.

The EMT-P must master a variety of complex skills that are not practiced by the basic level emergency medical technician, such as intravenous cannulation, endotracheal intubation (airway management), recognition and management of cardiac dysrhythmia, and administration of drugs and intravenous fluids. Many of these procedures can be very hazardous if performed by poorly trained persons; thus the paramedic must take responsibility for continuing competence and maintaining proficiency in those skills necessary to sustain life and prevent injury.

The MSDH certified the following personnel in 2003:

Emergency Medical Technician – Basic	1,826
Emergency Medical Technician – Intermediate	102
Emergency Medical Technician – Paramedic	1,192

The Legislature has authorized the MSDH Department of Emergency Medical Services to certify Mississippi's medical first responders beginning July 1, 2004.

Social Workers

Social workers practice and serve as an integral part of a complex and multidisciplinary health care system. The field of social work provides a network of services to all age groups, with a range of needs, in the form of diagnosis, treatment, rehabilitation, maintenance, and prevention in a variety of settings, including hospitals, nursing homes, clinics, hospices, and public health programs.

The Mississippi State Board of Examiners for Social Workers and Marriage and Family Therapists reported 3,871 licensed social workers during FY 2004. Three categories of licensure exist for social workers: Licensed Social Worker (LSW) for those individuals at the baccalaureate level, Licensed Masters Social Worker (LMSW) for those individuals who practice at the master's level, and Licensed Certified Social Worker (LCSW) for those individuals who have fulfilled the requirements for LMSW and completed a two-year requirement for post-master's professional supervision.

The Board reported 581 LCSWs, 658 LMSWs, and 2,662 LSWs in Mississippi in FY 2004. The highest number of master's level social workers reside in three counties: Hinds – 112 LCSWs/115 LMSWs; Forrest – 33 LCSWs/66 LMSWs; and Harrison – 68 LCSWs/76 LMSWs. Approximately 37 percent of LCSWs and 41 percent of LMSWs reside in these three counties.

This maldistribution of master's level social workers often causes problems in some counties where no master's level social workers are available for the supervision of baccalaureate level social workers, as is required for reimbursement by most health care payors.

Certified Medical Technologists

The American Society of Clinical Pathologists (ASCP) is the major certifying agency for medical technologists in Mississippi. Candidates may also obtain certification through the National Credentialing Agency for Laboratory Personnel (NCA).

The ASCP Board of Registry reported approximately 1,690 MTs registered in Mississippi for 2004, and NCA has certified 1,370 clinical laboratory scientists. In the past, MTs were not required to renew their registry each year; therefore, the state likely had a larger number of these professionals in practice than was reported. As of January 2004, the ASCP Board of Registrars is requiring all certificates to participate in a Certification Maintenance Program in order to maintain their ASCP certification, similar to NCA's current program. This new requirement will apply only to those who sit for the exam after January 1, 2004. For technologists certified before January 1, 2004, participation in the program remains voluntary.

In addition to hospitals, medical technologists are employed in research, education, inspection agencies, industry, and physician offices. All of these additional fields reduce the number of technologists available for employment in hospitals. The March 2002 ASCP Laboratory Medicine Journal reported an average 6.6 percent full-time equivalent vacancy rate for medical technologists in the South Central Atlantic region, which includes Mississippi. The year 2000 marked the highest vacancy rate reported per position over a 12-year period. Vacancy rates are concurrently continuing to accelerate, and fewer students are entering the career field. Difficulty of filling shifts, coupled with more staff turnover, presents a challenge for laboratory directors and managers.

Mississippi has two university-based schools for clinical laboratory scientists/medical technologists and two hospital-based programs. The University of Mississippi Medical Center's (UMC) program resides in the Department of Clinical Laboratory Sciences and its graduates receive a bachelor of science degree in clinical laboratory sciences. Students complete two years of academic preparation at any accredited institution of higher learning and then two years of upper division study at the Medical Center campus in Jackson. The undergraduate program also offers an expanded curriculum that allows students to specialize in the areas of molecular diagnostics, laboratory information systems, or laboratory management. UMC also offers a masters and a doctorate degree in clinical health sciences, with a specialty tract in clinical laboratory sciences. This program is designed to prepare graduate level educators and managers for positions in universities and the clinical laboratory. The Department of Clinical Laboratory Science at UMC expects to graduate 11 seniors in May 2004. For the 2004-2005 academic year, UMC expects 20 junior and 16 senior students.

The University of Southern Mississippi (USM) offers a "modified two-plus-two program," in which students complete three years of study before entering the medical technology practicum. Students may complete the first two years of the curriculum at a community college or another senior college. The program has a process for articulation with accredited Medical Laboratory Technician (MLT) programs which provide career mobility for the associate degree-level technician. Once enrolled in the practicum, which is the senior year, students receive two semesters of study on the USM campus and then complete a 24-week clinical rotation at an affiliated hospital, which include Forrest General Hospital in Hattiesburg, Gulf Coast Medical Center in Biloxi, Memorial Hospital at Gulfport, and Singing River Hospital in Pascagoula. A Bachelor of Science (B.S.) degree is awarded upon completion of the program. The total number of majors is approximately 105. Six students were graduated in 2003. The program experienced 100 percent placement for the last three years.

USM also offers two programs leading to the Master's degree in Medical Technology. One program is for individuals who possess certification as a medical technologist from a recognized national certifying agency, and the second program is for individuals who do not hold certification. The second program includes a medical technology practicum that allows the individual to become eligible to sit for a certification examination. Both the thesis and non-thesis options are available.

Mississippi's two hospital-based medical technology programs are located at North Mississippi Medical Center in Tupelo and Mississippi Baptist Medical Center in Jackson. In these programs, "three + one" students obtain three years of academic preparation at an institution of higher learning that has an affiliation agreement with the hospital program; then the students complete one year of clinical training in the respective hospital. These students receive a bachelor of science degree in medical technology from the university they attend. "Four + one" students complete a bachelor of science degree at any university, then complete one year of clinical training in the hospital with a certificate in medical technology. These programs graduated 13 students in 2003, expect to graduate 13 in 2004, and enroll 15 for the 2004-2005 term. Both programs experienced the lowest number of qualified medical technology applicants in 25 years.

Seven community colleges in the state offer two-year medical laboratory technician programs: Copiah-Lincoln, Gulf Coast, Hinds, Meridian, Mississippi Delta, Northeast, and Pearl River. The ASCP Board of Registry reports approximately 664 MLTs registered in Mississippi for 2003.

Certified Radiologic Technologists

Radiologic health services began with the diagnostic use of x-rays and the application of these and other forms of ionizing radiation for a limited number of therapeutic purposes. Now radiologic technology includes a wide variety of services ranging from diagnosis and therapy to radiation health and safety. New professions rapidly emerge as medical advances and technological developments introduce new equipment and instrumentation. Developments in ultrasound scanning, magnetic resonance imaging, and computerized tomography, including electronics, are revolutionizing the field.

The term "Radiologic Technology" actually encompasses all technologists specializing in radiography, nuclear medicine, radiation therapy, and diagnostic medical sonography. These technologists have national credentialing by the American Registry of Radiologic Technologists (ARRT) and are affiliated with the American Society of Radiologic Technologists (ASRT). As of March 2004, 2,457 ARRT credentialed technologists were registered with the Department of Health.

Mississippi has nine radiologic technology programs located at community colleges: Meridian, Copiah-Lincoln, Mississippi Delta, Gulf Coast, Itawamba, Jones, Northeast, Pearl River, and Hinds. The University of Mississippi Medical Center is the only certificate program in the state. Itawamba Community College established the state's first ultrasound program in 2000, and additional programs have been established at Hinds Community and Jones Junior Colleges. UMC teaches a nuclear medicine program and an additional nuclear medicine program will begin classes this fall at Mississippi Delta Community College.

The Mississippi Society of Radiologic Technologists (MSRT) states that a shortage of technologists exists in Mississippi, but no additional programs in radiography or ultrasound need to be established at this time. A need exists for a baccalaureate competent (2+2) radiation therapy program to be established in the state.

Registered Dietitians and Licensed Nutritionists

Nutrition professionals provide medical nutritional therapy for the treatment of disease, as well as providing education for the prevention of disease and disability. As of March 2004, the MSDH Division of Professional Licensure reported 573 regular and 35 provisionally licensed dietitians.

Respiratory Care Practitioners

Respiratory care practitioners are graduates of technician or therapist programs and work under the direction of qualified physicians. Respiratory care is a health care specialty offering a set of unique challenges in prevention, diagnosis, treatment, management, and rehabilitation of people with lung

problems. The majority of respiratory care practitioners work in hospitals, while others are employed in home health care, sleep clinics, pulmonary rehabilitation, and education.

The MSDH reported 1,785 (31 held temporary licenses) respiratory care practitioners licensed in Mississippi as of March 2004, with 1,624 residing in the state. All Mississippi hospitals have licensed respiratory care practitioners on staff. Seven community colleges offer two-year programs in respiratory therapy: Copiah-Lincoln, Gulf Coast, Hinds, Itawamba, Meridian, Northeast, and Pearl River.

Health Information Managers

Health Information Managers use computer technology to collect, organize, analyze, and generate health data for treatment, reimbursement, planning, quality assessment, and research. These health information professionals help safeguard the accuracy and privacy of patient information, while guaranteeing patients' access to their own records. This profession evolved from medical record administration within a hospital setting to an occupation responsible for the identification and organization of healthcare data from multiple sources. Health information managers work in acute care, ambulatory, long-term and mental health care facilities, industrial clinics, state and federal health agencies, private industry, and colleges and universities.

The School of Health Related Professions at the University of Mississippi Medical Center offers the state's only two-year upper division baccalaureate degree program for health information managers. Following graduation, the students are eligible to take the national registration exam and receive the credential RHIA, Registered Health Information Administrator. The RHIA is a manager and information specialist who interacts with other members of the medical, financial, and administrative staff to ensure that the information is protected, accurate, properly classified, and timely. RHIAs participate in the development and maintenance of health information systems.

Meridian, Hinds, and Itawamba Community Colleges offer two-year associate degree programs for the medical records technician. Students who satisfactorily complete these programs are eligible to take the examination for certification by the American Health Information Management Association and receive the credential RHIT, Registered Health Information Technician. RHITs perform a variety of technical health information functions, including evaluating health information, compiling health statistics, and coding diseases, operations, and procedures.

Health Manpower Standards

In planning for health manpower, one must consider the needs of current and projected populations for professional health services and the level of educational programs required to meet those needs. Unfortunately, significant numbers of professionals trained and educated in Mississippi leave the state, further increasing the difficulty of making accurate projections.

This section discusses standards and goals for the number of physicians, dentists, and nurses in Mississippi. The Department of Health recognizes that Mississippi needs additional health personnel in many fields; however, sufficient information is not available to estimate supply and demand for many professions, particularly allied health personnel.

Primary Care Physician Standard

The "National Guidelines for Health Planning" (*Federal Register*, November 25, 1980) recommend a ratio of one primary care physician for every 2,000 persons. However, this ratio is a minimum number because it does not reflect the productivity of individual physicians nor the availability of physicians to all population groups. The U.S. Department of Health and Human Services requires a ratio of 3,500 persons per primary care physician to designate an area as a health

professional shortage area for primary care. The Department will also designate areas with 3,000 persons per primary care physician if the area meets certain other conditions, as discussed at the beginning of this chapter. Mississippi had 65 counties or portions of counties designated as health professional shortage areas in July 2004.

Although the state as a whole had a ratio of one primary care physician per 1,318 persons in 2003, the physicians were maldistributed. Almost half (1,130) of the 2,269 primary care physicians lived and practiced in only seven counties; Hinds County alone had 22 percent of the total. The Department of Health recommends a ratio of one primary care physician for every 2,000 people as a goal for every county not currently meeting this standard.

Dentist Standard

The U.S. Department of Health and Human Services requires a ratio of 5,000 persons per dentist to designate an area as a health professional shortage area for dental care. This ratio is also the Mississippi standard. Based on a 2005 projected population of 2,991,488, the state currently has one active dentist for every 2,518 persons; however, as with physicians, the dentists are maldistributed through the state. Approximately 39 percent of Mississippi's dentists practice in the two metropolitan areas: Jackson and the Gulf Coast. Other counties have few dentists or none at all. The state's goal is to improve the distribution so that no county has more than 5,000 persons per dentist and primary dental care is available within 30 minutes travel time of all areas.

Nursing Standard

Based on the 2005 projected population, Mississippi currently has one registered nurse employed full-time in a nursing career for every 129 persons, and one licensed practical nurse employed full-time in a nursing career for every 346 persons. The role of the nurse continues to expand, and nurses sometimes provide health care in rural areas which do not have access to physicians. The state supports the diverse nursing education programs throughout Mississippi and recognizes the importance of the nurse's role as a provider of quality and economical health care in a variety of health care areas.

Strategies For Meeting Health Manpower Shortages

In attempting to recommend or suggest health system changes necessary to reach established manpower standards, one must remember that several variables have unpredictable effects. The recommendations presented here are based upon the judgement, experience, and current knowledge of the planning staff.

Physicians

Mississippi meets the minimum national standard statewide, but does not meet the standard in every county. The following recommendations would help the state improve its primary care physician to population ratio in underserved counties:

1. Increased retention of Mississippi graduates who go out of the state for primary care residency training.
2. Increased primary care residency opportunity within the state through expansion of the federally funded Area Health Education Center (AHEC) program established by the University of Mississippi Medical Center. AHEC provides off-site educational experiences in local communities for students and medical residents. Medical

students and residents who receive a portion of their training in rural communities are more likely to return to those areas upon completion of training.

3. Continuation of the Family Medical Education Scholarship program begun in 2001. This scholarship provides up to \$25,000 per year to 20 medical students who attend the University of Mississippi Medical Center and who commit to practice family medicine in a medically underserved area of Mississippi that is designated a “critical needs” area for six years upon completion of medical training. Currently, four MMMC students participate in the program.
4. Provision of a 10 percent bonus under the Medicaid program for primary care physicians practicing in Health Professional Shortage Areas (HPSAs). The federal Medicare program currently awards a 10 percent reimbursement bonus to physicians who practice in HPSAs to recognize the reduced earning capacity associated with practicing in a rural area and the need to attract additional physicians to these areas. Extending this bonus to primary care physician payments under the Medicaid program would serve as an increased incentive to attract needed doctors to underserved areas of the state.

Dentists

As with physicians, the state as a whole meets the minimum national standard for dentists, but many counties do not. Changes recommended to help achieve this goal in the provision of dental care are as follows:

1. An incentive program to encourage dentists to settle in rural areas where access to dental care is limited.
2. An innovative financial aid package for financially disadvantaged and/or minority applicants that is competitive with financial aid packages offered throughout the southeastern United States. The Omnibus Loan or Scholarship Act of 1991 created a program of scholarship aid for dentists as well as physicians, but funding has been inadequate to achieve substantial results.

Nurses

The Mississippi Nursing Organization Liaison Committee (NOLC), a committee of the Mississippi Nurses Association representing 25 nursing organizations, has worked proactively to address nursing workforce issues related to anticipated changes in nursing and the health care delivery system. Through the efforts of the NOLC, the Mississippi Legislature passed the Nursing Workforce Redevelopment Act during the 1996 Session. The Act authorized the Mississippi Board of Nursing to establish an entity that would be responsible for addressing changes impacting the nursing workforce.

Also in 1996, the NOLC received a three-year Robert Wood Johnson Foundation (RWJF) *Colleagues in Caring* grant entitled **Mississippi Nursing Workforce 2000**. Because the grant’s objectives were closely aligned with the efforts of the Nursing Workforce Redevelopment Act, the two projects were combined to achieve maximum effectiveness. The effort resulted in formation of the Office of Nursing Workforce Redevelopment (ONWR), with objectives including: (1) development and implementation of a systematic annual survey for nursing manpower needs and projections, and (2) development of a competency model to assist students in articulation and mobility within the multi-level nursing education system.

In 1999, the ONWR received an additional three years of funding from the Robert Wood Johnson Foundation as one of 20 participants in Stage II of the *Colleagues in Caring* grant. The 2001 Legislature changed the name to the Office of Nursing Workforce (ONW), appropriated \$100,000 in funding, and authorized ONW to establish systems to ensure an adequate supply of nurses to meet Mississippi's needs. This effort received endorsement from NOLC and was spearheaded by the Mississippi Nurses Association (MNA). ONW's commitment to designing policy strategies and leadership development will help position Mississippi as one of the states leading the effort to proactively address nursing workforce issues through policy and planning.

Currently, with funding from the Legislature and the Mississippi Development Authority, ONW is working with the Mississippi Council of Deans and Directors of Schools of Nursing, the MNA, and the Mississippi Organization of Nurse Executives to address issues vital to nursing. These issues include barriers to nursing education, recruitment into nursing, scholarship funding, the image of nursing, service/education collaboratives, retention of nursing service employees, and leadership training for nurses.

The Mississippi Educational Mobility Effort

Working with a consultant and the Office of Nursing Workforce Redevelopment, the Mississippi Council of Deans and Directors of Schools of Nursing developed and approved the *Mississippi Competency Model* (the Model) for testing. The document clearly defined major nursing roles and competencies within each role. Competencies for all levels of nursing education in the state were identified, including those for licensed practical nursing (LPN), associate degree nursing (ADN), baccalaureate degree nursing (BSN), and master of science in nursing (MSN) programs. The Model identified the uniqueness of each level of nursing preparation, as related to expected competencies, and will assist health planners to more clearly understand the various curricula offered within Mississippi's nursing education system to facilitate educational mobility.

Because there were no doctoral programs in Mississippi during the original Model development, Ph.D. competencies were not included. Since that time, the University of Mississippi Medical Center School of Nursing in Jackson and the University of Southern Mississippi School of Nursing in Hattiesburg have developed programs leading to a Ph.D. in Nursing. A Task Force on Doctoral Competencies was established in 2001 to facilitate development of the doctoral competencies. The revised model is now known as the Mississippi Nursing Competency Model and can be accessed via the Internet at www.monw.org.

Nursing Workforce Requirements

The determination of nursing workforce needs requires strategic synthesis of data concerning the supply of and demand for nurses. Currently, nurse supply data are available from the Mississippi Board of Nursing. To determine the demand for nurses, the Mississippi State Department of Health Division of Licensure and Certification added a survey to existing agency licensure renewal application forms for acute care hospitals, long-term care facilities, and home health agencies. Employers were asked to report their 2003 or 2004 budgeted full-time equivalent (FTE) positions and vacancies for multiple categories of Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and ancillary personnel. Additionally, employers were asked to project the number of FTEs they *intend* to have in the following two years for each of the personnel categories. Responses were returned to the Office of Nursing Workforce for analysis. Surveys were received from 108 hospitals, 46 home health agencies, and 183 aging and adult service facilities. Hospital and aging and adult service employers were well distributed throughout the state (Table VI-3).

Table VI-3
Number and Percent of Hospital, Home Health Agency,
and Aging and Adult Service Employers
Responding by Public Health District

Public Health District	Counties Included	Hospital		Home Health Agency		Aging and Adult Services	
		N	%	N	%	N	%
I	Coahoma, DeSoto, Grenada, Panola, Quitman, Tunica, Tate, Tallahatchie, Yalobusha	9	8.3	3	6.5	14	7.7
II	Alcorn, Benton, Itawamba, Lafayette, Lee, Marshall, Pontotoc, Prentiss, Tippah, Tishomingo, Union	10	9.3	5	10.9	24	13.1
III	Attala, Bolivar, Carroll, Holmes, Humphreys, Leflore, Montgomery, Sunflower, Washington	10	9.3	4	8.7	16	8.7
IV	Calhoun, Chickasaw, Choctaw, Clay, Lowndes, Monroe, Noxubee, Oktibbeha, Webster, Winston	12	11.1	3	6.5	19	10.4
V	Claiborne, Copiah, Hinds, Issaquena, Madison, Rankin, Sharkey, Simpson, Warren, Yazoo	21	19.4	6	13.0	38	20.8
VI	Clarke, Jasper, Kemper, Lauderdale, Leake, Neshoba, Newton, Scott, Smith	15	13.9	6	13.0	21	11.5
VII	Adams, Amite, Franklin, Jefferson, Lawrence, Lincoln, Pike, Walthall, Wilkinson	10	9.3	5	10.9	15	8.2
VIII	Covington, Forrest, Greene, Jefferson Davis, Jones, Lamar, Marion, Perry, Wayne	10	9.3	7	15.2	22	12.0
IX	George, Hancock, Harrison, Jackson, Pearl River, Stone	11	10.2	7	15.2	14	7.7
Missing	No County Listed	0	0	0	0	0	0
Total	All Counties	108	100	46	100	183	100

Source: Office of Nursing Workforce

Demand for Nursing Personnel in Hospitals

Registered Nurses (RNs): The 108 responding hospital employers reported a total of 13,007 budgeted FTEs for 2003. The RN FTEs include all RNs in a variety of roles in addition to staff nurses. These roles include administration, patient and inservice education, quality improvement, infection control, advanced practice (nurse practitioner, clinical nurse specialist, nurse-midwife, and nurse anesthetist) and others. Of the total number of budgeted RN FTEs, 1,229 were vacant, resulting in a vacancy rate of 9.3 percent, a slight decrease over last year.

Among employers reporting total RN FTEs, 102 provided data for 2003 budgeted FTEs and the total number of RN FTEs they intend to budget in 2004 and 2005. The current and intended numbers of RN FTEs reported by these employers are 10,844 in 2003, 11,454 in 2004, and 11,571 in 2005. The intended increase of 727 budgeted RN FTEs represents an overall 6.7 percent increase in budgeted RN FTEs over the three-year period.

A total of 101 employers provided data on the educational level of RN employees in 2003. The greatest percentage of RNs in hospitals hold the associate degree. The percent of RNs employed by hospitals at each educational level in 2003 were: diploma, 5.2 percent; associate degree, 63.2 percent; baccalaureate degree, 27.0 percent; master's degree 4.2 percent; and doctorate, 0.2 percent.

Budgeted 2003 FTEs and vacancy rates were reported for specific categories of RN personnel. For RN staff nurse FTEs, hospital employers reported a 10.1 percent vacancy rate. Employers reported the following vacancy rates: 6.0 percent for RNs in administrative positions, 5.5 percent for nurses in patient educator roles (41 reporting), 7.3 percent for clinical nurse specialists (19 reporting), 8.2 percent for RNs in inservice educator roles (84 reporting), and 2.8 percent for RNs in quality improvement roles (84 reporting). Vacancy rates were less than four percent for all other categories of RN personnel.

The actual numbers of personnel listed by employers in some categories were too small for further analysis. Budgeted 2003 FTEs, as well as intended FTEs for 2004 and 2005 for selected specific categories of RNs employed in hospitals, are shown in Table VI-4. Since not all hospitals employ or intend to employ all categories of RN personnel, there are differing numbers of employers responding.

Most RNs working in hospitals are identified as staff nurses (84 percent). Among employers providing FTE data across all three time periods, there is moderate intention to increase the number of budgeted RN staff nurse FTEs between 2003 and 2005. Other growth areas appear to be in the specific RN categories of inservice educators, patient educators, first assistants, family nurse practitioners, and certified registered nurse anesthetists. There is minimal intention to increase the number of budgeted FTEs in other categories.

Table VI-4
Personnel Categories,
Number of Hospital Employers Providing FTE Data Across All Three Time Periods,
and the Percent Change for Selected Categories of RN Personnel

RN Personnel Category	Number of Employers	2003 Budgeted FTEs	2004 Intended FTEs	2005 Intended FTEs	Change in FTEs	Percent Change
Staff	101	8,916	9,535	9,820	905	10.0
Administrator	100	676	700	684	7	1.0
Case Manager	70	258	268	278	20	7.8
Quality Improvement	77	104	106	115	10	10.0
Clinical Nurse Specialist	17	34	35	35	1	2.9
Infection Control	84	78	77	78	0	0.5
Inservice Educator	79	142	156	165	23	15.9

Patient Educator	41	54	63	66	12	22.0
First Assistant	26	86	94	95	9	10.5
Family Nurse Practitioner	39	99	111	123	24	24.2
Certified Registered Nurse Anesthetist	42	214	226	236	22	9.4

Source: Office of Nursing Workforce

Approximately 78 percent of the employers indicated they had difficulty recruiting one or more categories of RNs in 2003. Areas of need listed most frequently were medical/surgical units, critical care areas, emergency room, labor and delivery/obstetrics, and psychiatric units.

Employers had the opportunity of listing nursing continuing education needs for their hospitals. The primary continuing education needs, in order of frequency cited, are leadership/management skills, critical thinking, ACLS/PALS/ATLS/Trauma Care, documentation (particularly legal aspects), and regulatory issues and standards.

Licensed Practical Nurses (LPNs): A total of 105 employers provided vacancy and total budgeted LPN FTEs in 2003. Respondents reported 2,503 budgeted LPN FTEs and 244 FTE vacancies, resulting in an LPN vacancy rate of 9.7 percent, almost five percent lower than last year's rate of 14.6 percent. Twenty-nine (27 percent) hospital employers indicated difficulty recruiting LPNs in 2003.

LPN FTEs were reported for 2003, 2004, and 2005 by 97 employers. The current and intended number of LPN FTEs was reported as 1,949 in 2003, 2,103 in 2004, and 2,215 in 2005. The intended increase of 266 budgeted LPN FTEs represents an overall 13.7 percent increase in LPN FTEs over the three-year period.

Ancillary Personnel: Ancillary personnel vacancy and total budgeted FTEs for 2003 were reported by 97 employers. There were a total of 5,433 budgeted ancillary personnel FTEs and 298 FTE vacancies, resulting in a vacancy rate of 5.5 percent for ancillary personnel, slightly lower than last year. No employers reported difficulty recruiting ancillary personnel.

A total of 85 hospital employers reported budgeted FTE data for ancillary personnel for 2003, 2004, and 2005. The current and intended numbers of ancillary personnel FTEs are 4,520 in 2003, 4,719 in 2004, and 4,859 in 2005. The intended increase of 339 budgeted FTEs represents an overall 7.5 percent increase in ancillary personnel FTEs over the three-year period.

Temporary Personnel: Employers were asked whether they used temporary help to staff their facilities. The majority of employers (N=70, 65 percent) indicated they do not use temporary help. Of the 33 hospitals reporting the use of temporary nursing service staff, most used less than ten percent. Seventy-five (69.4 percent) employers indicated they used part-time staff. The number of hospitals reporting the use of temporary and part-time personnel increased from 2002 to 2003.

Demand for Nursing Personnel in Home Health

Registered Nurses (RNs): The 46 responding home health employers reported a total of 458 budgeted RN FTEs for 2004. The RN FTEs include RNs in a variety of roles in addition to staff nurses, including administration, case management, quality improvement, inservice education,

advanced practice (nurse practitioner, clinical nurse specialist), and others. Of the total number of budgeted RN FTEs, 40 were vacant, resulting in a vacancy rate of 8.6 percent.

Among employers reporting total RN FTEs, 30 provided data for 2004 budgeted FTEs and the total number of RN FTEs they intend to budget in 2005 and 2006. The current and intended numbers of RN FTEs reported by these employers are 395 in 2004, 425 in 2005, and 451 in 2006. The intended increase of 56 budgeted RN FTEs represents an overall 14.2 percent increase in budgeted RN FTEs over the three-year period.

A total of 30 home health employers provided data on the educational level of RN employees in 2004. The greatest percentage of RNs in home health hold the associate degree. The percent of RNs employed by home health agencies at each educational level in 2004 were: diploma, 4.7 percent; associate degree, 75.4 percent; baccalaureate degree, 18.4 percent; master's degree, 1.5 percent; and doctorate, 0 percent.

Budgeted 2004 FTEs and vacancy rates were reported for specific categories of RN personnel. For RN staff nurse FTEs, home health employers (N=45) reported an 8.6 percent vacancy rate. Home health employers reported a 4.6 percent vacancy rate for RNs in case manager positions. The vacancy rate reported for RNs in administrative positions was 15.4 percent, 1.3 percent for RNs in administrative positions, and 12.9 percent for quality improvement RNs. Too few FTEs were reported to allow for meaningful analysis of remaining categories of RN personnel.

Budgeted 2004 FTEs and intended FTEs for 2005 and 2006 for selected specific categories of RNs employed in home health are shown in Table VI-5. Since not all home health agencies employ or intend to employ all categories of RN personnel, there are differing numbers of employers responding.

Table VI-5
Personnel Categories, Number of Home Health Employers
Providing FTE Data Across All Three Time Periods,
and the Percent Change for Selected Categories of RN Personnel

RN Personnel Category	Number of Employers	2004 Budgeted FTEs	2005 Intended FTEs	2006 Intended FTEs	Change in FTEs	Percent Change
Staff	30	395	425	451	56	14.2
Administrator	29	76	80	83	7	9.2
Case Manager	14	100	104	109	9	9.0
Quality Improvement	17	29	34	36	7	24.0
Inservice Educator	12	14	16	19	4	31.6

Source: Office of Nursing Workforce

Most RNs working in home health are identified by employers as staff nurses (64 percent). Among employers providing FTE data across all three time periods (N=31), there is the intention to increase the number of budgeted total RN FTEs between 2004 and 2006 by 12.2 percent. More than half of home health employers (N=32; 69.6 percent) indicated difficulty recruiting RNs in 2004.

Employers also had the opportunity to list nursing continuing education needs. The primary continuing education needs listed by home health employers were wound care and nutrition.

Licensed Practical Nurses (LPNs): Fifteen home health employers provided vacancy and total budgeted LPN FTEs for 2004. Respondents reported 72 budgeted LPN FTEs and three FTE vacancies, resulting in an LPN vacancy rate of 2.8 percent.

Eleven employers also reported LPN FTEs for 2004, 2005, and 2006. The current and intended number of LPN FTEs are 68 in 2004, 70 in 2005, and 72 in 2006. The intended increase of four budgeted LPN FTEs represents a 6.6 percent overall increase in budgeted LPN FTEs over the three-year period.

Ancillary Personnel: Forty-three home health employers reported ancillary personnel vacancy and total budgeted FTEs for 2004. There were a total of 532 budgeted ancillary personnel FTEs and 32 FTE vacancies, resulting in a vacancy rate of 5.9 percent for ancillary personnel.

A total of 29 home health employers reported budgeted FTE data for ancillary personnel for 2004, 2005, and 2006. The current and intended number of ancillary personnel FTEs are as follows: 448 in 2004, 475 in 2005, and 490 in 2006. The intended increase of 42 budgeted FTEs represents an overall 9.4 percent increase in budgeted ancillary personnel FTEs over the three-year period.

Temporary Personnel: Home health employers were asked whether they used temporary or part-time help to provide nursing services. The majority of employers indicated using no temporary staff. Use of part-time personnel was reported by 21.7 percent (N=10) of employers, a significant decrease from last year's reported number. Part-time personnel use was reported at 20 percent or less.

Demand for Nursing Personnel in Aging and Adult Services

Registered Nurses (RNs): The 183 responding employers reported a total of 1,388 budgeted RN FTEs for 2004. The RN FTEs include all RNs in a variety of roles in addition to staff nurses, including administration, quality improvement, inservice education, advanced practice (nurse practitioners, clinical nurse specialist), and others. Of the total number of budgeted RN FTEs, 186 were vacant, resulting in a vacancy rate of 13.4 percent.

Among employers reporting total RN FTEs, 179 provided data for 2004 budgeted FTEs and the total number of RN FTEs they intend to budget in 2005 and 2006. The current and intended numbers of RN FTEs reported by these employers are as follows: 1,366 in 2004, 1,418 in 2005, and 1,443 in 2006. The intended increase of 78 budgeted RN FTEs represents an increase of 5.7 percent in budgeted RN FTEs over the three-year period.

A total of 179 employers provided data on the educational level of RN employees in 2004. The greatest percentage of RNs in aging and adult services hold the associate degree. The percent of RNs employed at each educational level in 2004 were: diploma, 7.5 percent; associate degree, 75.7 percent; baccalaureate degree 14.4 percent; master's degree, 2.3 percent; and doctoral degree less than 0.1 percent.

Budgeted 2004 FTEs and vacancy rates were reported for specific categories of RN personnel. For RN staff nurse FTEs, employers reported a 16.9 percent vacancy rate, less than one percent lower than last year's vacancy rate. Aging and adult services employers reported a 7.6 percent vacancy rate for RNs in administrative positions. Reported vacancy rates were 6.3 percent for quality improvement FTEs and 9.4 percent for inservice educator FTEs. Budgeted 2004 FTEs, as well as intended FTEs for 2005 and 2006 for selected specific categories of RNs employed in aging and adult services, are shown in Table VI-6. Since not all aging and adult services agencies employ or intend to employ all categories of RN personnel, there are differing numbers of employers responding.

Table VI-6
Personnel Categories, Number of Aging and Adult Service Employers
Providing FTE Data Across All Three Time Periods,
and the Percent Change for Selected Categories of RN Personnel

RN Personnel Category	Number of Employers	2004 Budgeted FTEs	2005 Intended FTEs	2006 Intended FTEs	Change in FTEs	Percent Change
Staff	163	799	830	848	49	6.1
Administrator	134	257	264	268	10	4.1
Quality Improvement	115	141	149	151	10	7.1
Inservice Educator	84	80	85	87	7	8.8

Source: Office of Nursing Workforce

Most RNs working in aging and adult services are identified by employers as staff nurses (58.8 percent). Among employers providing FTE data across all three time periods, there is the intention to increase the number of budgeted RN staff nurse, administrative, quality improvement, and inservice education FTEs between 2004 and 2006. Several other categories of RN personnel were listed for employer responses. However, the actual number of personnel listed by employers in these categories is too small for further analysis. These categories include clinical nurse specialists and nurse practitioners. Twelve facilities reported use of clinical nurse specialists and ten reported use or intended use of nurse practitioners.

Recruitment difficulties were reported by 132 facilities (72.1 percent). Ninety-five (49 percent) of aging and adult services employers indicated difficulty recruiting RNs in 2004.

Employers had the opportunity of listing nursing continuing education needs for their facilities. Documentation was overwhelmingly listed most often as a continuing education need, followed by leadership/management skills, infection control, wound care, regulatory issues and patient rights, medication administration, and assessment.

Licensed Practical Nurses (LPNs): Vacancy and total budgeted LPN FTEs for 2004 were reported by 182 aging and adult service employers. Respondents reported 2,454 budgeted LPN FTEs and 367 FTE vacancies, resulting in an LPN vacancy rate of 15.0 percent. Of those 182 employers providing data for 2004, a total of 107 (58.5 percent) indicated difficulty recruiting LPNs in 2004.

LPN FTEs were reported for 2004, 2005, and 2006 by 178 employers. The current and intended numbers of LPN FTEs are as follows: 2,409 in 2004, 2,537 in 2005, and 2,562 in 2006. The intended increase of 153 budgeted LPN FTEs represents an overall 6.3 percent increase in budgeted LPN FTEs over the three-year period.

Ancillary Personnel: Ancillary personnel vacancy rate and total budgeted FTEs for 2004 were reported for 174 aging and adult service employers. There were a total of 7,864 ancillary personnel FTEs and 525 FTE vacancies, resulting in a vacancy rate of 6.7 percent. Thirty-five (19 percent) of the employers indicated difficulty recruiting ancillary personnel.

A total of 171 aging and adult service employers reported budgeted FTE data for ancillary personnel for 2004, 2005, and 2006. The current and intended numbers of ancillary personnel FTEs are as follows: 7,767 in 2004, 8,109 in 2005, and 8,183 in 2006. The intended increase of 416

budgeted FTEs represents an overall 5.4 percent increase in budgeted ancillary personnel FTEs over the three-year period.

Temporary Personnel: A total of 66 aging and adult service employers (36.1 percent) indicated they use temporary nursing personnel. Of the 66 employers indicating a percent of temporary help, the majority indicated use of 20 percent or less for their nursing personnel requirements. Use of part-time staff was reported by 120 (65.6 percent) of facilities. The majority of those facilities use 25 percent or less. Only six (3.3 percent) indicated use of foreign trained nurses.

Demand for Nursing Personnel Overall

Data from all three reporting employment groups were combined to determine the overall RN, LPN, and ancillary personnel vacancy rates for 2004 and intended demand for 2005 and 2006. Vacancy rates were: RNs, 9.7 percent; LPNs, 12.2 percent; and ancillary personnel, 6.2 percent. The LPN and RN vacancy rates are slightly lower than last year; ancillary vacancy rates slightly higher. Intended increases in nursing personnel FTEs from 2004 to 2006 are as follows: 892 (6.9 percent) RN FTEs, 423 (9.6 percent) LPN FTEs, and 798 (5.9 percent) ancillary personnel FTEs. This data indicates an unchanged demand for RNs and a slight increase in demand for LPNs and ancillary personnel as compared to last year's data.

School of Nursing Data

Data for the following section were extracted from annual 2004 surveys administered to the Deans and Directors of Schools of Nursing by the Southern Regional Education Board (SREB) Council on Collegiate Education for Nursing. Permission to use the data was granted by SREB and the Mississippi Council of Deans and Directors of Schools of Nursing.

Currently, there are 21 state accredited Mississippi Schools of Nursing, including seven baccalaureate degree programs and 16 associate degree programs. Nineteen schools participated in the survey:

- a) Alcorn State University
- a) Delta State University
- b) East Central Community College
- c) Hinds Community College
- d) Holmes Community College
- e) Itawamba Community College
- f) Jones County Community College
- g) Meridian Community College
- h) Mississippi College
- i) Mississippi Delta Community College
- j) Mississippi Gulf Coast Community College (Jackson County Campus)
- k) Mississippi Gulf Coast Community College (Jefferson Davis Campus)
- l) Mississippi University for Women
- n) Mississippi Community College
- m) Northwest Mississippi Community College
- n) Pearl River Community College
- o) Southwest Mississippi Community College
- p) University of Mississippi Medical Center
- q) William Carey College

Respondents reported that not every student admitted to associate, baccalaureate, master's, and doctoral programs subsequently enrolled. Additionally, associate and master's programs reported having qualified applicants who were not admitted. Some baccalaureate programs reported having qualified applicants who were not admitted, while others admitted all who were qualified. The

majority of associate degree programs could not have accepted more students, while most baccalaureate and master's programs could have accepted more students.

Associate programs listed lack of faculty, limited clinical sites for interactive learning experiences, lack of classroom/campus space as the top three factors preventing acceptance of more students. Only one indicated that lack of qualified applicants prevented acceptance of more students to the program.

The most commonly listed factor preventing acceptance of more students in baccalaureate programs was lack of qualified applicants. Fifty percent of respondents cited lack of faculty and clinical sites as barriers to accepting more students. Master's programs cited lack of faculty and qualified applicants as the top factors in not accepting more students. Lack of clinical sites was not considered a barrier by any responding master's program.

The total number of full-time and part-time students reported by participating schools is 3,572 (see Table VI-7). Of those 3,572 students, 1,099 are expected to graduate by August 2004. Approximately 10.3 percent (369) of students currently enrolled in participating programs are male, and the majority are Caucasian (see Tables VI-7 and VI-8).

Table VI-7
Nursing Student Status and Gender

Program Type	Full-Time	Part-Time	Total	Male*	Female*	Expect to Graduate August 04
ADN	2,598 (97.6%)	65 (2.4%)	2,663	289	2,086	717
BSN	610 (87.8%)	85 (12.2%)	695	61	592	280
MSN	123 (60.6%)	80 (39.4%)	203	19	184	102
PHD	10 (90.9%)	1 (9.1%)	11	1	10	0

*288 students not identified by gender.

Table VI-8
Number of Students by Ethnic/Racial Group*

Program Type	African American	American Indian/Alaskan Native	Asian	Caucasian (non-Hispanic)	Hispanic	Other
ADN	561	1	4	1,679	6	7
BSN	154	0	3	534	0	4
MSN	48	1	3	150	1	0
PHD	4	0	0	7	0	0
Total Percent	767 21.5%	2 <0.1%	10 0.3%	2,370 66.3%	7 0.8%	11 0.3%

* 405 students not identified in ethnic/racial groups.

Participants reported 349 budgeted positions in the nursing education units. Of those 349, 12 (3.4 percent) were unfilled. Nine nurse educators resigned during the 2003-2004 year for various

reasons. The primary reasons for resignation were family responsibilities, advanced education, and career advancement. Ten nurse educators are expected to resign during the 2004-2005 academic year.

Fourteen nurse educators retired during the 2003-2004 academic year, with 18 retirements projected for the 2004-2005 academic year and 21 predicted for the 2005-2006 academic year. Thirty-nine retirements, in conjunction with the 12 unfilled nurse educator positions, would result in a vacancy rate of 14.6 percent in two years for the programs responding. Thirty 2004 graduates of master's programs are expected to complete courses in nursing education.

Thirteen of the 22 LPN programs in Mississippi responded to a separate survey sent by ONW. The majority of the respondents predicted no increase in admissions over the next two years. Two LPN faculty will be eligible for retirement in 2006; however, none reported intentions to retire during the year.

Occupational Therapists

To maintain the number of occupational therapists and occupational therapy assistants in the state, the following strategies are recommended:

- I. Encourage the maintenance of the occupational therapy educational system.
 - A. Support existing educational programs for occupational therapy assistants in Pearl River Community college and Holmes Community College. Due to the fluctuating marketplace, expansion and development of future programs is unadvisable at this time.
 - B. Promote the development and funding of existing programs providing occupational therapy education, both clinically and didactically.
 - C. Increase the number of qualified occupational therapy faculty.
- II. Continue to recruit qualified applicants into occupational therapy education programs, from high school level forward.
 - A. Target specific promotion to additional populations, including second career seekers, underemployed persons in related fields, and baccalaureate degree graduates in related fields.
 - B. Mount efforts aimed at attracting and retaining minorities in the profession.
 - C. Encourage the continued recruitment of high school seniors.
- III. Increase promotional activities aimed at expanding the availability of occupational therapy services to meet the needs of unserved or underserved persons. Support research to produce valid information of the efficacy of occupational therapy treatment for use in promoting the development of this service.
- IV. Offer incentives such as day care, competitive salaries, and financial support for continuing education to attract other occupational therapists to the state.

Physical Therapists

To maintain the number of physical therapists and physical therapist assistants in the state, the following strategies are recommended:

- I. Encourage maintenance of the physical therapy educational system.
 - A. Promote expansion and adequate funding of the existing physical therapy educational opportunities in the state, including clinical education components as well as didactic education. Also increase the numbers of qualified physical therapy faculty.
 - B. Support maintenance of the physical therapy educational program at the University Medical Center.
 1. Provide financial aid to physical therapy students, especially those who are financially disadvantaged and/or minorities to encourage them to remain in the state as a practitioner.
 2. Promote activities aimed at providing physical therapy services to persons presently unserved or underserved.
 3. Encourage research to enhance evidence based practice.
 - C. Support existing physical therapist assistant programs at Pearl River Community College, Meridian Community College, and Itawamba Community College. Due to the fluctuating market place, expansion of future programs is not warranted.
- II. Encourage the continued recruitment of individuals into the profession, beginning with career awareness activities in middle school and continuing into college years.
- III. Encourage greater recruitment of minorities and baccalaureate degree graduates into physical therapy from related fields.
- IV. Use incentives to retain physical therapists in the profession.
 - A. Provide day care services within the health care setting.
 - B. Provide continuing and specialized education for physical therapists to maintain the highest quality of services.
- V. Provide greater access to consumer choice of physical therapy services and promote the concept of direct access.
- VI. Promote actions to enhance the quality of care through changing the entry degree to the doctoral level. Provide mechanisms for practicing therapists to obtain the doctoral degree.

Speech-Language Pathologists/Audiologists

To increase the number of speech-language pathologists and audiologists in the state, the following strategies are recommended:

- I. Expand the educational system to train more speech-language pathologists/audiologists.
- II. Develop a plan to more actively recruit speech-language pathology and audiology students.
 - A. Provide health care linkages in promoting entry into the profession. Career awareness information should be provided to students earlier – perhaps in elementary and middle schools. The type of student attracted to professional programs (honor students) usually decide early about a professional career choice.

- B. Provide financial aid to speech-language pathology and audiology students.
 - 1. Support state legislation to increase financial aid.
 - 2. Encourage hospitals not presently providing scholarships/grants to do so.
- C. Encourage greater recruitment of minority students into speech-language pathology or audiology careers.